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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/642,844	08/18/2003	Alfred J. Lewy	90,559-T	3196

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EXAMINER	
ROYDS, LESLIE A	
ART UNIT	PAPER NUMBER
1614	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/22/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/642,844	LEWY ET AL.	
	Examiner	Art Unit	
	Leslie A. Royds	1614	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 January 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-24* is/are pending in the application.

4a) Of the above claim(s) *1-8,11-17 and 20-24* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *9-10,18-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claims 1-24 are presented for examination.

Applicant's Claims for Priority under 35 U.S.C. 120 and 121

Acknowledgement is made of the present application as a divisional (DIV) application of U.S. Patent Application No. 08/840,382, which has been noted in the Application Data Sheet dated August 18, 2003.

It is noted that the priority data at page 1 of the specification was amended at filing on August 18, 2003 and is inconsistent with the priority information provided in the Application Data Sheet, as well as the oath/declaration also dated August 18, 2003.

In accordance with the MPEP at 37 C.F.R. 1.76, the data provided in the Application Data Sheet controls the priority claim(s) for the instant application.

> "**§ 1.76 Application data sheet.**
> (a) *Application data sheet* . An application data sheet is a sheet or sheets, that may be voluntarily submitted in either provisional or nonprovisional applications, which contains bibliographic data, arranged in a format specified by the Office. An application data sheet must be titled "Application Data Sheet" and must contain all of the section headings listed in paragraph (b) of this section, with any appropriate data for each section heading. If an application data sheet is provided, the application data sheet is part of the provisional or nonprovisional application for which it has been submitted.
> (b) *Bibliographic data* . Bibliographic data as used in paragraph (a) of this section includes:
> ....
> (5) *Domestic priority information* . This information includes the application number, the filing date, the status (including patent number if available), and relationship of each application for which a benefit is claimed under 35 U.S.C. 119(e), 120, 121, or 365(c). Providing this information in the application data sheet constitutes the specific reference required by 35 U.S.C. 119(e) or 120, and § 1.78(a)(2) or § 1.78(a)(5), and need not otherwise be made part of the specification.
> ....
> (c) *Supplemental application data sheets.* Supplemental application data sheets:
> (1) May be subsequently supplied prior to payment of the issue fee either to correct or update information in a previously submitted application data sheet, or an oath or declaration under § 1.63 or § 1.67, except that inventorship changes are governed by § 1.48, correspondence changes are governed by § 1.33(a), and citizenship changes are governed by § 1.63 or § 1.67; and
> (2) Must be titled "Supplemental Application Data Sheet," include all of the section headings listed in paragraph (b) of this section, include all appropriate data for each section

heading, and must identify the information that is being changed, preferably with underlining for insertions, and strike-through or brackets for text removed.

(d) Inconsistencies between application data sheet and other documents. For inconsistencies between information that is supplied by both an application data sheet under this section and other documents.

(1) The latest submitted information will govern notwithstanding whether supplied by an application data sheet, an amendment to the specification, a designation of a correspondence address, or by a § 1.63 or § 1.67 oath or declaration, except as provided by paragraph (d)(3) of this section;

(2) The information in the application data sheet will govern when the inconsistent information is supplied at the same time by an amendment to the specification, a designation of correspondence address, or a § 1.63 or § 1.67 oath or declaration, except as provided by paragraph (d)(3) of this section;

(3) The oath or declaration under § 1.63 or § 1.67 governs inconsistencies with the application data sheet in the naming of inventors (§ 1.41 (a)(1)) and setting forth their citizenship (35 U.S.C. 115);

(4) The Office will capture bibliographic information from the application data sheet (notwithstanding whether an oath or declaration governs the information). Thus, the Office shall generally, for example, not look to an oath or declaration under § 1.63 to see if the bibliographic information contained therein is consistent with the bibliographic information captured from an application data sheet (whether the oath or declaration is submitted prior to or subsequent to the application data sheet). Captured bibliographic information derived from an application data sheet containing errors may be corrected if applicant submits a request therefor and a supplemental application data sheet.

Accordingly, the effective filing date of the instant application is April 29, 1997.

Requirement for Restriction/Election

Applicant was required under 35 U.S.C. 121 to elect a single invention for prosecution on the merits to which the claims will be restricted.

Applicant's election of the invention of Group V (claim 19), directed to a method for treating jet lag comprising the administration of melatonin, melatonin agonist or compound that increased endogenous production of melatonin in humans according to the steps of claims 9-10 and 18, in the reply filed January 8, 2007, is acknowledged. Insofar as Applicant has failed to particularly point out the supposed errors in the requirement for election, Applicant's election has been herein treated as an election. **without traverse**. Please reference MPEP §818.03(a).

Present claims 9-10 and 18 have been identified as linking claims and will be herein examined with the elected invention.

Therefore, for the reasons above and those made of record at pages 2-6 of the previous Office Action dated September 28, 2006, the restriction requirement remains proper and is made **FINAL**.

The claims corresponding to the elected subject matter are 9-10 and 18-19 and such claims are herein acted on the merits.

Claims 1-8, 11-17 and 20-24 are **withdrawn** from consideration pursuant to 37 C.F.R. 1.142(b) as being directed to non-elected subject matter.

Claim Rejections - 35 USC § 112, First Paragraph, Written Description Requirement

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 9-10 and 18-19 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claims contain subject matter that was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention.

Present claims 9-10 and 18-19 are directed to a method for achieving a circadian rhythm phase-delaying effect in a human, specifically, alleviating a circadian rhythm disorder such as jet lag, comprising the administering to the human an amount of melatonin, melatonin agonist or compound that increases endogenous production of melatonin in the human, and further wherein the administration of the melatonin, melatonin agonist or compound that increases endogenous production of melatonin in the human is administered after CT18 and prior to about CT1.

In particular, the specification as originally filed fails to provide adequate written description for

the claim limitations directed to (1) the genus of melatonin agonists (claims 9-10) or (2) the genus of compounds that increase endogenous production of melatonin in the human (claims 9-10).

Regarding the requirement for adequate written description of chemical entities, Applicant's attention is directed to the MPEP §2163. In particular, *Regents of the University of California v. Eli Lilly & Co.*, 119 F.3d 1559, 1568 (Fed. Cir. 1997), *cert. denied*, 523 U.S. 1089, 118 S. Ct. 1548 (1998), holds that an adequate written description requires a precise definition, such as by structure, formula, chemical name, or physical properties, "not a mere wish or plain for obtaining the claimed chemical invention." *Eli Lilly*, 119 F.3d at 1566. The Federal Circuit has adopted the standard set forth in the Patent and Trademark Office ("PTO") Guidelines for *Examination of Patent Applications* under the 35 U.S.C. 112.1 "Written Description" Requirement ("*Guidelines*"), 66 Fed. Reg. 1099 (Jan. 5, 2001), which state that the written description requirement can be met by "showing that an invention is complete by disclosure of sufficiently detailed, relevant identifying characteristics," including, *inter alia*, "functional characteristics when coupled with a known or disclosed correlation between function and structure..." *Enzo Biochem, Inc. v. Gen-Probe Inc.*, 296 F.3d 316, 1324-25 (Fed. Cir. 2002) (quoting *Guidelines*, 66 Fed. Reg. at 1106 (emphasis added)). Moreover, although *Eli Lilly* and *Enzo* were decided within the factual context of DNA sequences, this does not preclude extending the reasoning of those cases to chemical structures in general. *Univ. of Rochester v. G.D. Searle & Co.*, 249 Supp. 2d 216, 225 (W.D.N.Y. 2003).

Applicant has failed to provide any structural characteristics, chemical formula, name(s) or physical properties, aside from the express identification of melatonin *per se*, that would provide adequate written description of the genus of compound capable of agonizing melatonin and those capable of increasing endogenous production of melatonin that Applicant was actually in possession of, and intended to be used within the context of the present invention, at the time of the present invention.

Applicant's specification states at the paragraph bridging pages 17-18, "The present invention contemplates the use of melatonin precursors, agonists and other compounds which mimic melatonin

activity, in place of melatonin (*N*-acetyl-5-hydroxytryptamine) itself, as well as compounds that compete with melatonin at the melatonin receptor (melatonin antagonists) and compounds that stimulate melatonin receptors to have an effect opposite to that of melatonin (melatonin inverse agonists), in addition to drugs (melatonin blockers or melatonin stimulants) and interventions (such as exposure to light or darkness) that lower or raise, respectively, endogenous melatonin levels. For the purposes of this invention, the use of the term 'melatonin' will also be understood to encompass all such melatonin agonists, precursors and other compounds that mimic melatonin activity, as well as compounds that increase endogenous melatonin production in the human or otherwise potentiate or enhance the physiological activity of melatonin in a human."

Such disclosure, while noted, fails to identify any compounds that would be considered within the scope of the terms "melatonin agonists" or "compounds capable of increasing endogenous melatonin production". Applicant has failed to provide any limiting definition, let alone an exemplary definition, or any chemical or physical characteristics of these compounds such that one of ordinary skill in the art would have been able to readily identify the scope of those compounds encompassed by the terms "melatonin agonists" or "compounds capable of increasing endogenous melatonin production."

MPEP §2163 recites, "The written description requirement for a claimed genus may be satisfied through sufficient description of a representative number of species by actual reduction to practice, reduction to drawings, or by disclosure of relevant identifying characteristics, i.e., structure or other physical and/or chemical properties, by functional characteristics coupled with a known or disclosed correlation between function and structure, or by a combination of such identifying characteristics, sufficient to show the Applicant was in possession of the claimed genus." Please reference *Eli Lilly*, 119 F.3d at 1568, 43 USPQ2d at 1406.

It is reiterated that the instant specification fails to provide even an exemplification of those compounds that are melatonin agonists or compounds capable of increasing endogenous melatonin

production. Furthermore, it remains that Applicant has also failed to define any structural component, such as a common core structural element, as being responsible for the function of the compound in agonizing melatonin or increasing endogenous melatonin production and, thus, has failed to define the metes and bounds of the genus. While it is duly noted that the genus of compounds that either agonize melatonin or increasing endogenous melatonin production is clearly limited to those capable of functioning in either manner, it remains that Applicant has not appropriate defined the metes and bounds of the genus, even when limited by function (step-plus-function form). MPEP §2163 teaches that step-plus-function claims are adequately described if "the written description *adequately links or associates adequately described particular structure*, material, or acts *to the function recited in a step-plus-function claim limitation*," or if "it is clear based on the facts of the application that one skilled in the art would have known what structure, material, or acts perform the function recited in a step-plus-function limitation." The instant application does not meet these criteria. The present specification provides no disclosure beyond the generic disclosure of the required function and melatonin *per se* that would provide a means for identifying the compounds that would have been amenable for use in the present invention, nor does it specifically teach a common structural element that performs the function recited in the claim and would be readily identifiable to one of skill in the art. Furthermore, it has been held that a wish or plan for obtaining the chemical invention as claimed does not provide adequate written description of a chemical invention. Rather, a precise definition, such as by structure, formula, chemical name or physical properties or a combination thereof, is required. Please reference, e.g., *Univ. of Rochester v. G.D. Searle & Co.*, 358 F.3d 916, 927, 69 USPQ2d 1886, 1894-95 (Fed. Cir. 2004).

While it is recognized that adequate written description of a limitation is not required to be stated *in haec verba* in the specification or claims as originally filed, adequate written support for claim limitations must arise from either an explicit or implicit suggestion by the disclosure to show that such a concept as claimed was actually in possession of Applicant at the time of the invention. For the reasons

provided *supra*, Applicant has failed to provide the necessary teachings, by describing the claimed invention with all of its limitations using such descriptive means that fully set forth the claimed invention, in such a way as to reasonably convey to one skilled in the relevant art that Applicant had possession of the (1) the genus of melatonin agonists (claims 9 and 10) or (2) the genus of compounds capable of increasing endogenous production of melatonin (claims 9 and 10).

Accordingly, the claims are considered to lack sufficient written description and are properly rejected under 35 U.S.C. 112, first paragraph.

Claim Rejections - 35 USC § 112, Second Paragraph

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 10 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention.

Present claim 10 is directed to a method for achieving a circadian rhythm phase-delaying effect in a human, the method comprising the step of administering to the human an amount of melatonin, melatonin agonist or compound that increases endogenous production of melatonin in the human, and further wherein the melatonin, melatonin agonist or compound that increases endogenous production of melatonin in the human is administered after CT18 and prior to about CT1.

In particular, Applicant's limitations directed to administration between specific circadian times, i.e., after CT18 and prior to about CT1, are relative times that are based upon the time at which the individual is first exposed to light, i.e., circadian time (CT) 0, and, thus, vary from individual to individual, as well as the person's unique dim light melatonin onset time (DLMO). Further, Lewy et al. ("Phase Shifting the Human Circadian Clock Using Melatonin", *Behavioural Brain Research*, 73 (1996):131-134) is cited to demonstrate that circadian times are even more variable among humans and

depend upon the DLMO (dim light melatonin onset) time, whether the individual is synchronized to the 24-hour light-dark cycle or is on a free-running circadian clock, or whether the individual is abnormally phase-advanced or phase-delayed. In other words, there are numerous factors that affect individual circadian clocks and absent some sort of standard, or defined host characteristic (e.g., 24-hours light-dark cycle or free-running, etc.), by which to determine what time CT18 or CT1 actually corresponds, the skilled artisan would not have been reasonably apprised of the metes and bounds of the claim limitation directed to administration after CT18 and prior to about CT1 and what would constitute infringement of the instantly claimed method.

For these reasons, the claims fail to meet the tenor and express requirements of 35 U.S.C. 112, second paragraph, and are, thus, properly rejected.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 9-10 and 18-19 are rejected under 35 U.S.C. 102(b) as being anticipated by Lewy et al. (WO 95/05819; 1995).

Lewy et al. teaches a method for treating circadian rhythm phase disturbances (abstract) by effecting a chronobiologic (phase-shifting) effect in a human via the administration of exogenous melatonin to the human at an appropriate time relative to the human's dim light endogenous melatonin onset time (p.5, l.23-27). Lewy et al. discloses the treatment of jet lag as a preferred embodiment (p.8, l.15-18), and further teaches that the direction of the travel will determine whether a phase advance or a phase delay is desired (p.25, l.13-15). Lewy et al. teaches that melatonin administration should occur

preferably between CT20 to about CT2 and most preferably at about CT0 in order to effect a phase delay (p.8, l.3-5) and also discloses the use of melatonin precursors, agonists or compounds that mimic melatonin activity in place of melatonin itself (p.6, l.12-14).

Though Lewy et al. does not expressly teach that the administration of the melatonin (or a melatonin agonist or compound that increases endogenous production of melatonin) produces in the human a plasma melatonin or agonist concentration of greater than quiescent melatonin or equivalent agonist levels during the time interval from about CT18 to about CT6 than from the time interval from about CT6 to about CT18, the administration of the same compound as claimed (i.e., melatonin or agonist thereof) to a human suffering from jet lag is considered to necessarily have the claimed effect on plasma melatonin levels from CT18-CT6 than from CT6-CT18, whether expressly recognized by Sharpe et al. or not. Products of identical chemical composition cannot exert mutually exclusive properties when administered under the same circumstances or, in the present case, the same host. Please reference MPEP §2112.

The explanation of an effect obtained when using a compound cannot confer novelty on a known process if the skilled artisan was already aware of the occurrence of the desired therapeutic effect. In other words, even if the effects on plasma melatonin levels was not itself recognized as a pharmacological effect of administering melatonin or an agonist thereof of Lewy et al. to a human suffering from jet lag, such an effect is not considered a new therapeutic application because the known treatment of jet lag using this same active agent was already known in the prior art. Though mechanisms of action or functional effects of chemical entities are no doubt important contributions to scientific and pharmaceutical development, the assessment of patentability under 35 U.S.C. 102 is based upon the therapeutic applications and therapeutic effects of the compounds, not the mechanism or functional property by which they exert such an effect. Furthermore, it is generally well settled in the courts that a mechanistic property or functional effect of a chemical compound, or combination of chemical

compounds, when administered under identical conditions, is necessarily present, despite the fact that is may not have been readily apparent to, or recognized by, one of ordinary skill in the art.

Claims 9 and 18-19 are rejected under 35 U.S.C. 102(b) as being anticipated by Short et al. (U.S. Patent No. 4,600,723; 1986).

Short et al. teaches a method for the treatment of disturbances in circadian rhythms of bodily performance and function, such as, e.g., jet lag, by administering melatonin (abstract) or a synthetic melatonin analog (col.7, l.59-54). Short et al. further teaches that the circadian phase shift is dependent upon the direction of travel, i.e., westerly travel results in a phase delay, while easterly travel results in a phase advance (col.2, l.36-43) and exemplifies melatonin administration in patients with easterly travel (see, e.g., Examples 1, 3, etc.). Short et al. teaches the administration of the melatonin immediately following the time change, when the person would be trying to go to sleeping according to the new time schedule (col.7, l.51-54).

Though Short et al. does not expressly teach that the administration of the melatonin (or a melatonin agonist or compound that increases endogenous production of melatonin) produces in the human a plasma melatonin or agonist concentration of greater than quiescent melatonin or equivalent agonist levels during the time interval from about CT18 to about CT6 than from the time interval from about CT6 to about CT18, the administration of the same compound as claimed (i.e., melatonin or agonist thereof) to a human suffering from jet lag is considered to necessarily have the claimed effect on plasma melatonin levels from CT18-CT6 than from CT6-CT18, whether expressly recognized by Sharpe et al. or not. Products of identical chemical composition cannot exert mutually exclusive properties when administered under the same circumstances or, in the present case, the same host. Please reference MPEP §2112.

The explanation of an effect obtained when using a compound cannot confer novelty on a known process if the skilled artisan was already aware of the occurrence of the desired therapeutic effect. In

other words, even if the effects on plasma melatonin levels was not itself recognized as a pharmacological effect of administering melatonin or an analog thereof of Short et al. to a human suffering from jet lag, wherein a phase delaying effect was desirable due to the phase delay that occurs due to westerly travel, such an effect is not considered a new therapeutic application because the known treatment of jet lag using this same active agent was already known in the prior art. Though mechanisms of action or functional effects of chemical entities are no doubt important contributions to scientific and pharmaceutical development, the assessment of patentability under 35 U.S.C. 102 is based upon the therapeutic applications and therapeutic effects of the compounds, not the mechanism or functional property by which they exert such an effect. Furthermore, it is generally well settled in the courts that a mechanistic property or functional effect of a chemical compound, or combination of chemical compounds, when administered under identical conditions, is necessarily present, despite the fact that is may not have been readily apparent to, or recognized by, one of ordinary skill in the art.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner

to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 9-10 and 18-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Short et al. (U.S. Patent No. 4,600,723; 1986).

Short et al. teaches a method for the treatment of disturbances in circadian rhythms of bodily performance and function, such as, e.g., jet lag, by administering melatonin (abstract) or a synthetic melatonin analog (col.7, l.59-54). Short et al. further teaches that the circadian phase shift is dependent upon the direction of travel, i.e., westerly travel results in a phase delay, while easterly travel results in a phase advance (col.2, l.36-43) and exemplifies melatonin administration in patients with westerly travel (see, e.g., Examples 1, 3, etc.). Short et al. teaches the administration of the melatonin immediately following the time change, when the person would be trying to go to sleeping according to the new time schedule (col.7, l.51-54).

Though Short et al. does not expressly teach that the administration of the melatonin (or a melatonin agonist or compound that increases endogenous production of melatonin) produces in the human a plasma melatonin or agonist concentration of greater than quiescent melatonin or equivalent agonist levels during the time interval from about CT18 to about CT6 than from the time interval from about CT6 to about CT18, the administration of the same compound as claimed (i.e., melatonin or agonist thereof) to a human suffering from jet lag is considered to necessarily have the claimed effect on plasma melatonin levels from CT18-CT6 than from CT6-CT18, whether expressly recognized by Sharpe et al. or not. Products of identical chemical composition cannot exert mutually exclusive properties when administered under the same circumstances or, in the present case, the same host. Please reference MPEP §2112.

The explanation of an effect obtained when using a compound cannot confer novelty on a known process if the skilled artisan was already aware of the occurrence of the desired therapeutic effect. In

other words, even if the effects on plasma melatonin levels was not itself recognized as a pharmacological effect of administering melatonin or an analog thereof of Short et al. to a human suffering from jet lag, wherein a phase delaying effect was desirable due to the phase delay that results from westerly travel, such an effect is not considered a new therapeutic application because the known treatment of jet lag using this same active agent was already known in the prior art. Though mechanisms of action or functional effects of chemical entities are no doubt important contributions to scientific and pharmaceutical development, the assessment of patentability is based upon the therapeutic applications and therapeutic effects of the compounds, not the mechanism or functional property by which they exert such an effect. Furthermore, it is generally well settled in the courts that a mechanistic property or functional effect of a chemical compound, or combination of chemical compounds, when administered under identical conditions, is necessarily present, despite the fact that is may not have been readily apparent to, or recognized by, one of ordinary skill in the art.

The difference between Short et al. and the claimed subject matter lies in the fact that Short et al. does not expressly disclose the administration of the melatonin after CT18 and prior to about CT1 (claim 10).

However, the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains because the optimum schedule of administration to reduce circadian rhythm disturbance for the treatment of jet lag with the presently claimed active agent(s) would have varied greatly between individuals because individual circadian rhythms are based upon a variety of factors, including, but not limited to, (1) first exposure to bright light, (2) dim light melatonin onset time, (3) whether the individual is synchronized to a 24-hour light-dark cycle or a free-running cycle, or (4) whether the individual is already abnormally phase-advanced or phase delayed. Accordingly, the determination of the optimum time of administration would have been

made in consideration of such factors, as well as the degree and magnitude of the phase shift occurring due to travel. In view of such factors, the time of administration that was employed by Short et al. would have varied widely and, in the absence of evidence to the contrary, the currently claimed time of administration is not seen to be inconsistent with that which would have been determined by the skilled artisan from the teachings of Short et al.

Double Patenting

Obviousness-Type Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 9-10 and 18-19 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 44-48, 53-57 and 59 of U.S. Patent Application No. 10/945,843 and are rejected under the judicially created doctrine of obviousness-type double patenting over the method claims of U.S. Patent Nos. 5,242,941; 5,420,152; 5,591,768; 5,716,978; 6,638,963; and 6,794,407. This rejection is directed solely to the claims of the above-cited patents that define methods of use, i.e., the same statutory category of invention.

Due to the number of applicable different patents, and further due to the similarity among the

claims of each cited patent, a detailed analysis of why the presently claimed subject matter would have been an obvious variation over each one of the applicable claims in different patents is not presented, but the rejection set forth below is applicable to all of the above-cited patents, but for differences in claim numbering.

Claims 9-10 and 18-19 are rejected over claims 1, 3-5, 7 and 9-10 of U.S. Patent No. 6,638,963. For the following reasons, the presently claimed subject matter would have been obvious not only over such claims, but over each of the applicable claims of the remaining U.S. Patents cited above.

It is noted that though a restriction/election requirement was issued in the '963 case, examination was expanded to non-elected subject matter and a U.S. Patent was issued for a greater scope of subject matter than the initially elected invention. For this reason, a double patenting rejection is appropriate.

An obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but an examined application claim is not patentably distinct from the reference claims because the examined claims is either anticipated by, or would have been obvious over, the reference claims.

Although the conflicting claims are not identical, the claims of the instant application and those of the '963 patent are not considered to be patentably distinct from each other because the patented claims clearly render the present claims obvious.

The patented claims clearly provide for the treatment of jet lag via achieving a circadian rhythm phase-delaying effect in a human by administering melatonin, a melatonin agonist or a compound that increased endogenous production of melatonin in the human at a time after CT18 and prior to CT1.

Though the patented claims recite the functional effect of administration of the melatonin, melatonin agonist or compound that increased endogenous melatonin production [i.e., the production of plasma melatonin or agonist concentration of greater than quiescent melatonin or equivalent agonist levels that overlaps offset of endogenous melatonin production, said greater than quiescent melatonin or

equivalent agonist levels rise before the melatonin offset and fall after the melatonin offset (patented claim 1) or the production of a plasma melatonin or agonist concentration of greater than quiescent melatonin or equivalent agonist levels for a time or in a concentration that is different during a time interval from about CT6 to about CT18 than that produced during the time interval from about CT18 to about CT6 (patented claim 7)], which differs slightly from what is instantly claimed (i.e., the production in the human a plasma melatonin or agonist concentration of greater than quiescent melatonin or equivalent agonist levels during the time interval from about CT18 to about CT6 than from the time interval from about CT6 to about CT18), it is noted that patented claims and the instant claims recite the administration of the same compound (i.e., melatonin, a melatonin agonist or a compound that increases endogenous melatonin production) to the same host (i.e., one suffering from jet lag and in need of a phase delay) at the same time (i.e., between CT18 and CT1), and, therefore, the functional effects of the patented claims are identical to the instant claims because products of identical composition cannot have mutually exclusive properties, particularly when administered under identical conditions and an identical host. Please see MPEP §2112.

Though the patented claims also recite the use of immediate-release, delayed-release or sustained-release formulations of the melatonin, melatonin agonist or compound that increased endogenous production of melatonin, such is not a patentable distinction over the instant claims because the instant claims are open to the use of any type of pharmaceutical formulation, as long as it contains the same active ingredient of melatonin, a melatonin agonist or a compound that increased endogenous production of melatonin. Further, the determination of the optimum type of release formulation of the active ingredients would have been *prima facie* obvious to the skilled artisan and would have been determined in accordance with a variety of factors, such as, but not limited to, the duration and intensity of the therapeutic effect desired, the amount to be administered and toxicological considerations.

Accordingly, rejection of claims 9-10 and 18-19 of the instant application is deemed proper over each of the above-indicated patents as claiming obvious and unpatentable variants.

Conclusion

Rejection of claims 9-10 and 18-19 is proper.

Claims 1-8, 11-17 and 20-24 are **withdrawn** from consideration pursuant to 37 C.F.R. 1.142(b).

No claims of the present application are allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leslie A. Royds whose telephone number is (571)-272-6096. The examiner can normally be reached on Monday-Friday (9:00 AM-5:30 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ardin H. Marschel can be reached on (571)-272-0718. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Leslie A. Royds
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March 13, 2007

Ardin H Marschel 3/17/07

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